

Appl. Serial No. 09/982,481
Amendment Dated August 8, 2007
Reply to Office Action Mailed May 8, 2007

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

1 1. - 43. (Cancelled)

1 44. (Currently Amended) A method executed by a computer to form a pixel bar chart for
2 display on a display monitor, comprising:

3 obtaining a set of records, each record comprising a plurality of attributes;

4 assigning a pixel to each of said records to provide record-assigned pixels, wherein every
5 such record-assigned pixel in the chart is assigned to a different record; and

6 constructing the pixel bar chart by:

7 partitioning the record-assigned pixels into groups along a first axis of the pixel
8 bar chart according to a first dividing attribute;

9 partitioning the record-assigned pixels in the groups into sub-groups along a
10 second axis of the pixel bar chart according to a second dividing attribute;

11 after partitioning into the sub-groups, sorting, in each of the sub-groups, the
12 record-assigned pixels according to a first ordering attribute along the first axis of the pixel bar
13 chart, and according to a second ordering attribute along the second axis of the pixel bar chart,
14 wherein each record-assigned pixel is adjacent at least one other record-assigned pixel.

1 45. (Previously Presented) The method of claim 44 further comprising, for each
2 record-assigned pixel, assigning a selectable visual indicator to the record-assigned pixel based
3 on an attribute value of each record so that some pixels have a different visual indicator than
4 other pixels.

1 46. (Previously Presented) The method of claim 45 wherein the visual indicator comprises
2 color.

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47. (Previously Presented) The method of claim 44 wherein said records are obtained from a multidimensional data set, and said method further comprises assigning a selectable visual indicator to each record-assigned pixel based on an attribute of each record so that some pixels have a different visual indicator than other pixels.

48. (Previously Presented) The method of claim 44 wherein the pixel bar chart comprises a plurality of columns corresponding to the groups, each column comprising a plurality of pixels and having a width measured in terms of pixels, and the method further comprises causing the width of at least one column to be different than the width of at least one other column.

49. (Cancelled)

50. (Currently Amended) A computer-readable storage medium having computer-readable program code embodied therein that is adapted to [[cause]] be executed by a computer to implement a method to form a pixel bar chart for display on a display monitor, the method comprising:

obtaining a set of records, each record comprising a plurality of attributes;

assigning a pixel to each of said records to provide record-assigned pixels, wherein every such record-assigned pixel in the chart is assigned a different record; and

constructing the pixel bar chart by:

partitioning the record-assigned pixels into groups along a first axis of the pixel bar chart according to a first dividing attribute;

partitioning the record-assigned pixels in the groups into sub-groups along a second axis of the pixel bar chart according to a second dividing attribute;

after partitioning the record-assigned pixels into the sub-groups, sorting, in each of the sub-groups, the record-assigned pixels according to a first ordering attribute along the first axis, and sorting, within each sub-group, the record-assigned pixels according to a second ordering attribute along a second axis, wherein each record-assigned pixel is adjacent at least one other record-assigned pixel.

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1 51. – 52. (Cancelled)

1 53. (Currently Amended) The computer-readable storage medium of claim 50 wherein said
2 records are obtained from a multidimensional data set, and said method further comprises
3 assigning a selectable visual indicator to each record-assigned pixel based on an attribute of each
4 record so that some pixels have a different visual indicator than other pixels.

1 54. (Currently Amended) The computer-readable storage medium of claim 50 wherein the
2 pixel bar chart comprises a plurality of columns that correspond to the groups, each column
3 comprising a plurality of pixels and having a width measured in terms of pixels, and the method
4 further comprises causing the width of at least one column to be different than the width of at
5 least one other column.

1 55. (Cancelled)

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1 56. (Currently Amended) A computer system, comprising:

2 a bus;

3 a display device coupled to said bus;

4 a computer-readable memory coupled to said bus; and

5 a processor coupled to said bus, said processor executes a method for constructing a pixel
6 bar chart for display on the display device, said method comprising:

7 obtaining a set of records, each record comprising a plurality of attributes;

8 assigning a pixel to each of said records to provide record-assigned pixels,

9 wherein every such record-assigned pixel in the chart is assigned a different record; and

10 constructing the pixel bar chart by:

11 partitioning the record-assigned pixels into groups along a first axis of the
12 pixel bar chart according to a first dividing attribute;

13 partitioning the record-assigned pixels in the groups into sub-groups along
14 a second axis of the pixel bar chart according to a second dividing attribute;

15 after partitioning the record-assigned pixels into the sub-groups, sorting, in
16 each of the sub-groups, the record-assigned pixels according to a first ordering attribute along a
17 first axis, and sorting, within each sub-group, the record-assigned pixels according to a second
18 ordering attribute along a second axis, wherein each record-assigned pixel is adjacent at least one
19 other record-assigned pixel.

1 57. – 58. (Cancelled)

1 59. (Previously Presented) The computer system of claim 56 wherein said records are

2 obtained from a multidimensional data set, and said method further comprises assigning a

3 selectable visual indicator to each record-assigned pixel based on an attribute of each record so

4 that some pixels have a different visual indicator than other pixels.

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1 60. (Previously Presented) The computer system of claim 56 wherein the pixel bar chart
2 comprises a plurality of columns corresponding to the groups, each column comprising a
3 plurality of pixels and having a width measured in terms of pixels, and the method further
4 comprises causing the width of at least one column to be different than the width of at least one
5 other column.

1 61. – 62. (Cancelled)

1 63. (Previously Presented) The method of claim 44, wherein sorting the record-assigned
2 pixels in each sub-group according to the first and second ordering attributes comprises
3 performing a two-dimensional sort of the record-assigned pixels in each sub-group.

1 64. (Previously Presented) The method of claim 44, further comprising:
2 determining a first one-dimensional histogram for the first ordering attribute, and a
3 second one-dimensional histogram for the second ordering attribute,
4 wherein sorting the record-assigned pixels in each sub-group is based on the first and
5 second one-dimensional histograms.

1 65. (Previously Presented) The method of claim 44, wherein the first and second ordering
2 attributes are selected from the plurality of attributes, and the method further comprising:
3 selecting a visual indicator attribute from the plurality of attributes, wherein the visual
4 indicator attribute is different from both the first and second ordering attributes; and
5 applying colors to the record-assigned pixels according to the visual indicator attribute
6 such that at least some of the record-assigned pixels have different colors.

1 66. (Previously Presented) The method of claim 44, wherein partitioning into sub-groups
2 causes at least some of the sub-groups to have different widths measured in terms of pixels along
3 the first axis, and causes at least some of the sub-groups to have different heights measured in
4 terms of pixels along the second axis.

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1 67. (Previously Presented) The method of claim 44, wherein sorting the record-assigned
2 pixels in each sub-group according to the first ordering attribute along the first axis comprises
3 sorting the record-assigned pixels in each sub-group according to the first ordering attribute
4 along an x-axis, and

5 wherein sorting the record-assigned pixels in each sub-group according to the second
6 ordering attribute along the second axis comprises sorting the record-assigned pixels in each
7 sub-group according to the second ordering attribute along the y-axis.

1 68. (Previously Presented) The method of claim 44, wherein constructing the pixel bar chart
2 further comprises arranging the sub-groups in an array defined by the first and second axes.

1 69. (Previously Presented) The method of claim 68, wherein partitioning into the sub-groups
2 causes at least some of the sub-groups to have different widths measured in terms of pixels along
3 the first axis, and causes at least some of the sub-groups to have different heights measured in
4 terms of pixels along the second axis.

1 70. (Currently Amended) The computer-readable storage medium of claim 50, wherein
2 sorting the record-assigned pixels according to the first and second ordering attributes along the
3 respective first and second axes comprises performing a two-dimensional sort of the
4 record-assigned pixels according to the first and second ordering attributes.

1 71. (Currently Amended) The computer-readable storage medium of claim 50, wherein
2 sorting the record-assigned pixels in each sub-group according to the first ordering attribute
3 along the first axis comprises sorting the record-assigned pixels in each sub-group according to
4 the first ordering attribute along an x-axis, and
5 wherein sorting the record-assigned pixels in each sub-group according to the second
6 ordering attribute along the second axis comprises sorting the record-assigned pixels in each
7 sub-group according to the second ordering attribute along the y-axis.

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- 1 72. (Currently Amended) The computer-readable storage medium of claim 50, wherein the
2 first and second ordering attributes are selected from the plurality of attributes, and the method
3 further comprises:
4 selecting a visual indicator attribute from the plurality of attributes, wherein the visual
5 indicator attribute is different from both the first and second ordering attributes; and
6 applying colors to the record-assigned pixels according to the visual indicator attribute
7 such that at least some of the record-assigned pixels have different colors.
- 1 73. (Currently Amended) The computer-readable storage medium of claim 50, wherein
2 partitioning into the sub-groups causes at least some of the sub-groups to have different widths
3 measured in terms of pixels along the first axis, and causes at least some of the sub-groups to
4 have different heights measured in terms of pixels along the second axis.
- 1 74. (Currently Amended) The computer-readable storage medium of claim 50, wherein
2 constructing the pixel bar chart further comprises arranging the sub-groups in an array defined by
3 the first and second axes.
- 1 75. (Currently Amended) The computer-readable storage medium of claim 74, wherein
2 partitioning into the sub-groups causes at least some of the sub-groups to have different widths
3 measured in terms of pixels along the first axis, and causes at least some of the sub-groups to
4 have different heights measured in terms of pixels along the second axis.
- 1 76. (Previously Presented) The computer system of claim 56, wherein at least some of the
2 sub-groups have different widths measured in terms of pixels along the first axis, and at least
3 some of the sub-groups have different heights measured in terms of pixels along the second axis.
- 1 77. (Previously Presented) The computer system of claim 56, wherein sorting the
2 record-assigned pixels according to the first and second ordering attributes causes a
3 two-dimensional sort of the record-assigned pixels in each sub-group.

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1 78. (Previously Presented) The computer system of claim 56, wherein the first and second
2 ordering attributes are selected from the plurality of attributes, and wherein the method executed
3 by the processor further comprises:

4 selecting a visual indicator attribute from the plurality of attributes, wherein the visual
5 indicator attribute is different from both the first and second ordering attributes; and

6 applying colors to the record-assigned pixels according to the visual indicator attribute
7 such that at least some of the record-assigned pixels have different colors.

1 79. (Previously Presented) The computer system of claim 56, wherein the sub-groups of the
2 pixel bar chart are arranged in an array defined by the first and second axes.

1 80. (Previously Presented) The computer system of claim 79, wherein at least some of the
2 sub-groups have different widths measured in terms of pixels along the first axis, and at least
3 some of the sub-groups to have different heights measured in terms of pixels along the second
4 axis.

1 81. (Currently Amended) A method executed by a computer to form a pixel bar chart for
2 display on a display monitor, comprising:

3 receiving a set of records, each record comprising a plurality of attributes;

4 assigning the records to respective data points of the pixel bar chart; and

5 partitioning the data points into groups along a first axis of the pixel bar chart according
6 to a first dividing attribute;

7 partitioning the data points in the groups into sub-groups along a second axis of the pixel
8 bar chart according to a second dividing attribute, wherein the sub-groups are arranged in an
9 array defined by the first and second axes;

10 after partitioning into the sub-groups, sorting, in each of the sub-groups, the data points
11 according to a first ordering attribute along the first axis of the pixel bar chart, and according to a
12 second ordering attribute along the second axis of the pixel bar chart.

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1 82. (Previously Presented) The method of claim 81, wherein partitioning into the sub-groups
2 causes at least some of the sub-groups to have different widths measured in terms of pixels along
3 the first axis, and causes at least some of the sub-groups to have different heights measured in
4 terms of pixels along the second axis.

1 83. (New) The method of claim 44, wherein the first dividing attribute, second dividing
2 attribute, first ordering attribute, and second ordering attribute are distinct attributes.

1 84. (New) The method of claim 44, wherein the first dividing attribute, second dividing
2 attribute, first ordering attribute, and second ordering attribute are selected from the plurality of
3 attributes.

1 85. (New) The computer-readable storage medium of claim 50, wherein the first dividing
2 attribute, second dividing attribute, first ordering attribute, and second ordering attribute are
3 distinct attributes.

1 86. (New) The computer-readable storage medium of claim 50, wherein the first dividing
2 attribute, second dividing attribute, first ordering attribute, and second ordering attribute are
3 selected from the plurality of attributes.

1 87. (New) The computer system of claim 56, wherein the first dividing attribute, second
2 dividing attribute, first ordering attribute, and second ordering attribute are distinct attributes.

1 88. (New) The computer system of claim 56, wherein the first dividing attribute, second
2 dividing attribute, first ordering attribute, and second ordering attribute are selected from the
3 plurality of attributes.

1 89. (New) The method of claim 81, wherein the first dividing attribute, second dividing
2 attribute, first ordering attribute, and second ordering attribute are distinct attributes.

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- 1 90. The method of claim 81, wherein the first dividing attribute, second dividing attribute,
- 2 first ordering attribute, and second ordering attribute are selected from the plurality of attributes.